REMARKS

In response to the Office Communication of June 10, 2009, Applicant provides a complete listing of the claims in ascending numerical order, with the correct status thereof identified. Applicant appreciates the examination of the present application as evidenced by the Office Action dated December 23, 2008 (hereinafter, "the Office Action"). Applicant respectfully requests further consideration of the application in view of the amendments above and the comments that follow to address the issues raised in the Office Action.

Claim Rejection Under 35 U.S.C. § 101

Claim 1 stands rejected under 35 U.S.C. § 101. This rejection is now moot where Claim 1 has been canceled without prejudice or disclaimer, and Applicant respectfully requests that this rejection be withdrawn.

Claim Rejections Under 35 U.S.C. §102

Claims 1 and 57 stand rejected under 35 U.S.C. § 102(b) as being anticipated by WO 98/44350 to Blau et al. (hereinafter, "Blau et al."); 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 20030091975 to Leyland-Jones et al. (hereinafter, "Leyland-Jones et al."); and 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,521,521 to Abbott et al. (hereinafter, "Abbott et al."). The rejection of Claim 1 is now moot in view of the cancellation of this claim. Regarding Claim 57, the present invention can be distinguished from Blau et al. in a number of fundamental aspects including, but not limited to, the following:

1. The scaffold material of the present invention includes a number of controllable properties (now recited amended Claim 57; support for which can be found in the application as filed, for example, page 4, lines 1-3 and page 12, line 28 through page 13, line 13), that are **not** described or suggested in Blau et al. These controllable properties include the specific lysine or cysteine residue composition of the scaffold material. Lysine or cysteine residues are used as the site (or sites) for covalent attachment of target moiety molecule(s). A further controllable property is the molecular weight of the scaffold material, which can be varied by selection of the particular sequence of the scaffold material to maximize the suitability of the material for any particular application. A further controllable property is the isoelectric point

of the scaffold material (pI), which can be varied by selection of the particular sequence of the scaffold material to maximize the suitability of the material for any particular application. A further controllable property is the presence of an affinity purification feature; this can be used to separate the product from other material using affinity chromatography or similar methods.

2. The scaffold material of the present invention does not participate in the generation of a detectable signal. In Blau et al., it is Applicant's understanding that it is an **absolute** requirement that the scaffold material participates actively in the generation of signal. The binding partner for the target moiety is covalently linked to a binding partner for the scaffold material. Detection of the interaction of the target moiety binding partner with the target moiety is achieved by the parallel recognition of the scaffold material by its specific binding partner-- a physical interaction which gives rise to detectable signal (enzyme activity, or specific physical structure). According to embodiments of the present invention, the scaffold material does not have a binding partner, and is not involved in the generation of detectable signal.

3. Embodiments of the present invention do not require that the target moiety binding partner is covalently linked to any other structure – as is a requirement of Blau et al. In embodiments of the present invention, detection of the target moiety interaction with its specific binding partner can be accomplished by non-covalent interaction between key components as is well known in the art (the non-covalent interaction between primary antibody and secondary antibody in an immunoassay for example, or the non-covalent interaction of primary antibody with protein A or similar in an alternative configuration of an immunoassay).

4. Embodiments of the present invention can utilize many different components in the construction of a detectable signal. The Blau et al. invention imposes strict limitations on the range of components capable of creating a detectable signal. A precise match is required between scaffold material of the presentation system and the scaffold binding partner of the detection system. According to aspects of the present invention, no such restriction exists – allowing use of the invention with a wide range of detection components (secondary antibodies, protein A, protein G, dye conjugates of the above, enzyme conjugates of the above, radioactive conjugates of the above, particle conjugates of the above).

5. Embodiments of the present invention utilize a separation step to distinguish between detection of the calibration material (target moiety covalently linked to scaffold material) and detection of the target moiety in a specimen. This distinction permits the detection of binding partner interaction with the target moiety in various forms (target moiety attached to scaffold material and target moiety in the specimen) directly. Blau et al., does not utilize a separation step, and is unable to measure both types of interaction directly. Blau et al. is only able to generate detectable signal from

the target moiety-scaffold material, and cannot detect target moiety in a specimen directly.

Thus, Blau et al. does not teach each and every recitation of Claim 57 as amended herein. Moreover, in view of the distinctions and divergent teachings of Blau et al., Blau et al. fails to provide an enabling disclosure to one skilled in the art. Similarly, the remaining cited references fail to teach each and every recitation of amended Claim 57 or provide an enabling disclosure:

Leyland-Jones et al. describe a series of immunoassays. The scaffold materials (or analogous materials) do not have controllable properties – no control of lysine or cysteine content for site specific labelling: no control of isoelectric point or molecular weight. Leyland-Jones does not describe a procedure to measure the target moiety (unmodified) in a test specimen directly – all measures are indirect, by competitive assays. Leyland-Jones et al. is representative of the deficient background references described in the instant application.

Abbott et al. describe an immunoassay in which the aggregation of latex particles of a variety of sizes is related to antibody-target moiety interaction. The scaffold material of Abbott is unrelated to materials of those recited in the pending claims. Furthermore the scaffold materials of Abbott does not have controllable properties, and is in fact a "nonuniform-sized polymer particle." This is the antithesis of embodiments of the present invention, which require uniform homogeneous scaffold material of controllable properties.

In some examples, Abbott describes attachment of target moiety to a protein and attachment of the protein to the particle. Attachment at multiple primary amine (lysine) sites is described resulting in 13.5 target moiety per scaffold. This observation clearly shows heterogeneity of product – as a homogeneous product would show only whole integer ratios of target moiety to scaffold. This is inconsistent with controllable properties as noted in the present application.

Upmeier et al. describe a covalent cross-linkage approach to increase the stability of a natural target moiety. Intramolecular cross-linkage of a naturally occurring target moiety is described, with covalent attachment of detection features (fluorophores, enzymes, biotin) to the target moiety. This differs substantially from embodiments of the present invention which employ non-natural presentation system, and which do not involve the covalent linkage of analyte to detection modules.

Ideker et al. section 0070 describes the covalent attachment to the target moiety directly. Such features play no part in embodiments of the present invention, which include the non-covalent association of detection component(s) to the target moiety.

Caras et al. describe target moiety-scaffold fusions in which an IgG based scaffold is recognized by and bound to a protein A partner (example 5). This partnership is then

covalently cross-linked. In embodiments of the present invention, it is noted that the scaffold material does not interact with any binding partners.

Accordingly, Applicant respectfully submits that Claim 57 and claims dependent therefrom are not anticipated by the cited references, and Applicant respectfully requests that the rejections under 35 U.S.C. § 102 be withdrawn.

Claim Rejections Under 35 U.S.C. §103

Claim 30 stands rejected under 35 U.S.C. §103(a) as being obvious in view of the combination of Blau et al. and U.S. Patent No. 4,208, 479 to Zuk et al. (hereinafter, "Zuk et al."). The Office Action acknowledges that "Blau, Ideker, Upmeier, Caras, Abbott, and Leyland-Jones et al. do not explicitly teach a kit comprising the elements recited in claim 57." Office Action, page 6.

For at least the reasons discussed above, it is clear that the cited references do not teach the recitations of amended Claim 57. Zuk et al. does not cure the deficiencies of these multiple references by proposing the combination of reagents to form a kit. Instead, in order to establish a *prima facie* case of obviousness, three basic criteria must be met which include: (1) the cited reference or combination of references must teach or suggest all the claim recitations. *See In re Wilson*, 165 U.S.P.Q. 494 (C.C.P.A. 1970); (2) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings in order to arrive at the claimed invention; and (3) there must be a reasonable expectation of success. In this instance, the combination of references fails to provide the present invention and absent guidance from Applicant's specification, there is no motivation to modify the references in order to arrive at the present invention. Accordingly, Applicant respectfully submits that Claim 30 is not obvious in view of the cited references, and Applicant respectfully requests that the claim rejection under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

Applicant submits that the present application is in condition for allowance and the same is earnestly solicited. Should the Examiner have any small matters outstanding of resolution, the Examiner is encouraged to telephone the undersigned at 919-854-1400 for expeditious handling.

Respectfully submitted,

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